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BIRD DISTRIBUTION DYNAMICS

BIRD DISTRIBUTION DYNAMICS 3 – AFRICAN SPOONBILL *PLATALEA ALBA* IN SOUTH AFRICA, LESOTHO AND SWAZILAND

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This is the third paper of the new series on bird distribution dynamics in *Biodiversity Observations.* The first two papers dealt with the Hamerkop *Scopus umbretta* and the Maccoa Duck *Oxyura maccoa* (Underhill & Brooks 2016c, d). The objective of this series is to report on the ranges of bird species as revealed by the Second Southern African Bird Atlas Project (SABAP2, 2007 onwards) and to describe how their ranges have changed since the first bird atlas (SABAP1, mainly 1987–1991), about two decades apart.

This series of papers is also made feasible by the development of two new standards for the presentation of maps, firstly pentad-scale distribution maps derived from SABAP2 data, and secondly range-change maps showing how distributions have changed between SABAP1 and SABAP2 (Underhill & Brooks 2016a, b). Because the papers in this series use these two new maps, the rules for interpretation are not provided in detail in each paper in this series.

This paper deals with the African Spoonbill *Platalea alba* (Figure 1). The threat status of this species is given as “Least Concern” (Taylor et al. 2015).

Figure 1. African Spoonbills, Intaka Island, Century City, Cape Town. BirdPix section of the ADU Virtual Museum. Photographer © Fanie Rautenbach. (See http://vmus.adu.org.za/?vm=BirdPix-262)

African Spoonbill *Platalea alba*

The global range of the African Spoonbill is Africa south of the Sahara Desert and Madagascar. Usually, just a single bird or a small flock are encountered. It is unmistakable and conspicuous. It forages in shallow aquatic habitats and is most frequently encountered in freshwater wetlands: marshes, pans, temporary flooded grassland, floodplains,

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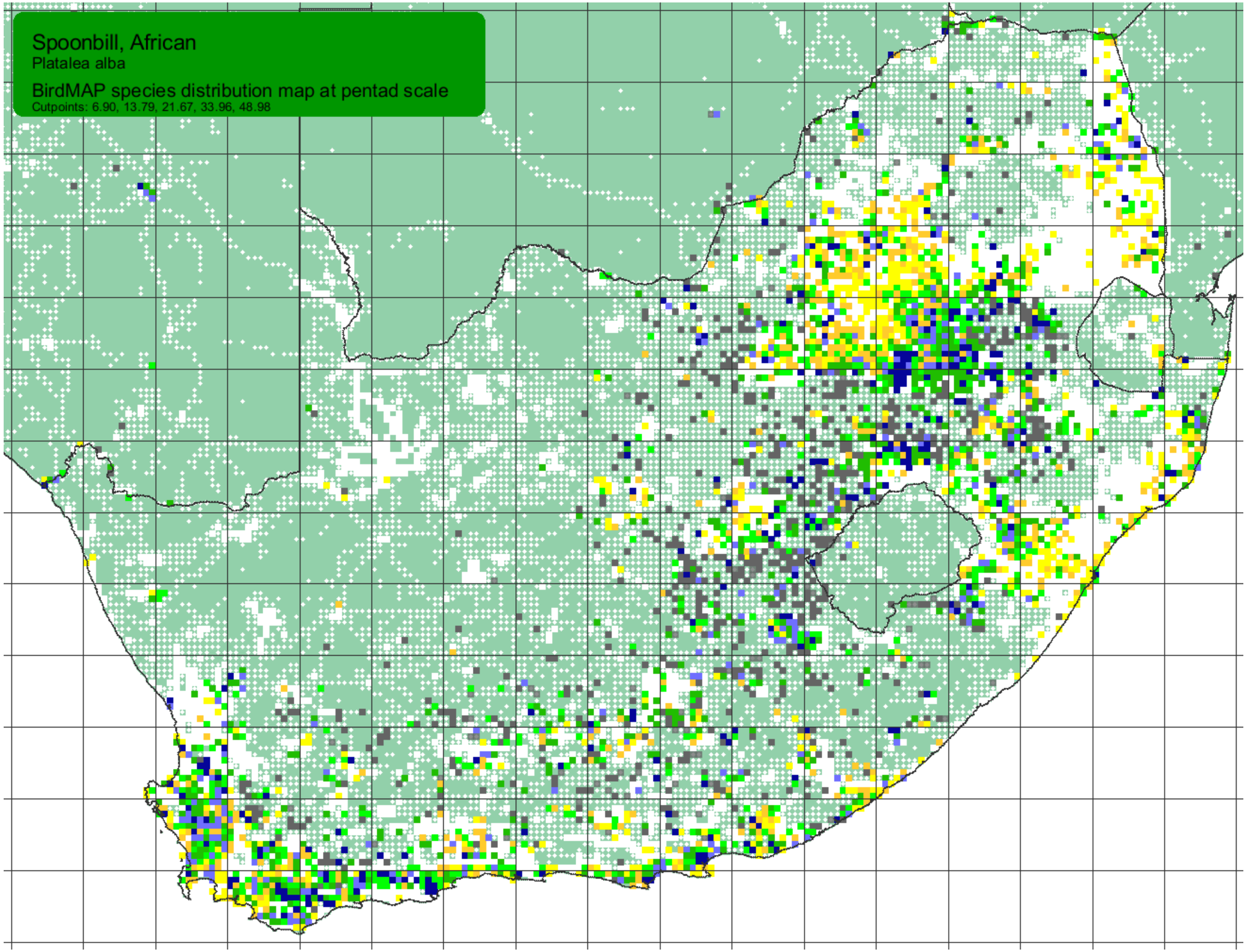

Figure 2: SABAP2 distribution map for the African Spoonbill in southern Africa, downloaded 19 December 2016. The detailed interpretation of this map is provided by Underhill & Brooks (2016a). Pentads with four or more checklists are either shaded white, species not recorded, or in colour, with shades based on reporting rate: yellow 0–6.9%, orange 6.9–13.8%, light green 13.8–21.7%, dark green 21.7–34.0%, light blue 34.0–49.0% and dark blue 49.0–100%. In pentads shaded grey or with white dots, there are one, two or three full protocol checklists, or there are ad hoc lists, or incidental records. In pentads shaded grey, the species was recorded as present; in pentads with white dots the species has not been recorded. If a pentad has four or more checklists, and the species has been recorded on an ad hoc checklist or as an incidental recorded, it is shaded yellow, indicating that the species has a small reporting rate.

rivers, sewage ponds and dams, both large and small. It occasionally occurs in saltwater environments such as estuaries and coastal lagoons. Traditionally, the best habitat has been the permanent wetlands of the highveld areas of the South Africa's interior (Tarboton et al 1987, Hockey et al. 1989, Anderson 1997).

At the start of the 20th century, its distribution seems to have been distinctly small. The verbal description of the distribution then was follows: "In South Africa [read southern Africa], the present species is by no means common; it is hardly known in the Cape Colony, but it appears to be occasionally met with in Natal and the Transvaal, and to be fairly abundant in the Lake Ngami region and on the Zambesi" (Stark & Sclater 1906). During the 20th century, it expanded massively in range and abundance (Anderson 1997); it reached the Western Cape in the 1950s (Hockey et al. 1987). Its success has been attributed to its ability to adapt to artificial wetlands, even in more or less urban contexts; its description as "highly nomadic, without evidence of any regular seasonal movements" is a characteristic which enables it to exploit temporary wetlands; it reached the Western Cape in the 1950s. (Whitelaw 1968, Tarboton et al 1987, Hockey et al. 1989, Anderson 1997). It breeds in colonies, usually along with other colonial waterbirds, such as herons, egrets, ibises and cormorants. Hockey et al. (1989) noted that the African Spoonbill is "more susceptible to human disturbance when breeding than most other species in mixed colonies."

The SABAP2 pentad-scale distribution map is typical of a waterbird, with the scattering of pentads reflecting the scattering of suitable wetlands (Figure 2). The core of its distribution lies across the high-altitude grasslands of the interiot of South Africa, and also in the Overberg and Swartland regions of the Western Cape, where there are multiple farm dams and other artificial wetlands. The distribution extends from Swartland along the coastal regions of the Eastern Cape, where there are also many wetlands, both natural and artificial. It is scarce in the arid northwestern parts of South Africa, the Limpopo River valley, the escarpment in Mpumalanga, Lesotho and Swaziland. The urban areas of central Gauteng are shaded yellow, indicating low reporting rates in this densely populated area.

In Figure 3, the approach described in Underhill & Brooks (2016b) was used to classify the quarter degree grid cells into six categories of increase and decrease. The relative increases and decreases are estimated using the Griffioen transformation (Underhill & Brooks 2016b), and involve an assumption that, in pentads where African Spoonbill occurs, they are randomly distributed across the landscape, i.e. they are not clustered or in flocks. For the African Spoonbill, this is probably partially true, given that it occurs mostly singly or in small flocks.

Table 1. Range-change summary for the African Spoonbill between SABAP1 and SABAP2. The table provides a count of the number of quarter degree grid cells of each colour in Figure 3. Also shown are the same summaries when the analysis is restricted to grid cells with at least 30 checklists for both SABAP1 and SABAP2.

Status	Four checklists for SABAP1 & SABAP2		30 checklists for SABAP1 & SABAP2	
	Count	%	Count	%
Red (very large decrease)	477	38	180	31
Orange (large decrease)	250	20	136	23
Yellow (small decrease)	130	10	72	12
Light green (small increase)	101	8	57	10
Dark green (large increase)	125	10	68	12
Blue (very large increase)	189	15	67	12
Total	1272	100	580	100

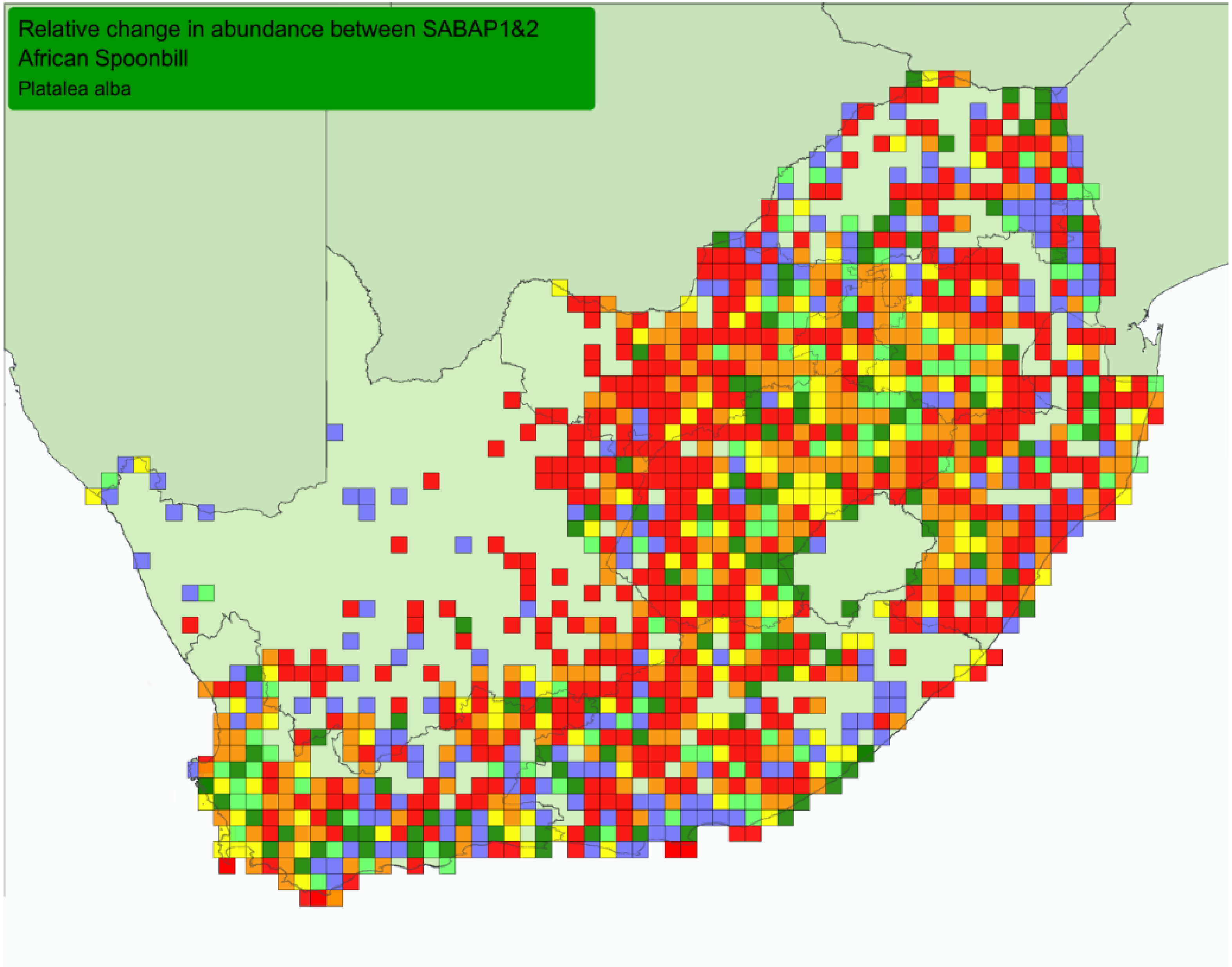

Figure 3: Range-change map between SABAP1 and SABAP2 for the African Spoonbill, downloaded 19 December 2016. Red, orange and yellow represent quarter-degree grid cells with very large, large, and small relative decreases and blue, dark green and light green represent grid cells with very large, large and small relative increases. A count of the number of grid cells in each category is provided in Table 1. All these gird cells had African Spoonbills recorded in them either in SABAP1 or in SABAP2 or in both. Fuller information on the interpretation of this range-change map is provided in Underhill & Brooks (2016b).

Figure 2 shows results for only the 1272 quarter degree grid cells for which there are four or more checklists for both SABAP1 and SABAP2 and in which African Spoonbill occurred in either SABAP1 or SABAP2 (Table 1). In other words, grid cells in which African Spoonbill did not occur in either project are not included in this analysis. Of these 1272 quarter degree grid cells, 477 (38%) are red, and 250 (20%) are orange. This suggests very large (red) or large (orange) decreases in 58% of the quarter degree grid cells.The numbers of grid cells shaded blue (very large increase) and dark green (large increase) are 189 (15%) and 125 (10%) respectively. The apparent decreases massively outweigh the apparent increases.

Because this analysis uses grid cells with as few as four checklists in either SABAP1 or SABAP2, results are subject to sampling error (Underhill & Brooks 2016b). When the analysis is restricted to grid cells with at least 30 checklists in both SABAP1 and SABAP2, sampling error is considerably smaller, but there are only 580 grid cells which meet this criterion (Table 2). In this restricted analysis, 54% of grid cells show large or very large decreases, and 24% show large or very large increases.

Overall, the most likely scenario is that the expansion in range and increase in abundance which the African Spoonbill clearly experienced for most of the 20th century has come to an end. It appears likely that the spoonbill has started to decrease in abundance in the two decades since SABAP2.

Because of its nomadic behaviour, counts of African Spoonbills at individual wetlands are unlikely to be able to help us understand overall population trends. This is borne out by the results reported by Taylor et al. (1999), where the graphics show large inter-year fluctuations at wetlands, with the largest value being an order of magnitude larger than the smallest. It is likely that an annual trend index based on the SABAP2 data will provide a reliable measure of population trend for African Spoonbill.

Acknowledgements

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